CLAIM AMENDMENTS

1 to 40. *(Canceled)*

41. *(Previously presented)* A method of increasing the proliferative capacity of a mammalian cell expressing telomerase RNA component, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a protein comprising SEQ. ID NO:2, or fragment of SEQ. ID NO:2 that contains the telomerase T motif:

Trp-X_{12}-Phe-Phe-Tyr-X-Thr-Glu-X_{10-11}-Arg-X_3-Trp-X_7-Ile (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;

wherein the encoded protein has telomerase catalytic activity when complexed with a telomerase RNA component, and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. *(Previously presented)* The method of claim 41, wherein the cell is a human cell.

43. *(Previously presented)* The method of claim 41, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

44. *(Previously presented)* The method of claim 43, wherein the cell is a human cell.

45. *(Previously presented)* The method of claim 41, wherein the polynucleotide encodes a full-length telomerase reverse transcriptase.

46. *(Previously presented)* The method of claim 45, wherein the cell is a human cell.

47. *(Previously presented)* The method of claim 45, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

48. *(Previously presented)* The method of claim 41, wherein the polynucleotide comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.

49. *(Previously presented)* The method of claim 48 wherein the cell is a human cell.

50. *(Previously presented)* The method of claim 48 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

51. *(Previously presented)* The method of claim 50 wherein the cell is a human cell.

52. *(Previously presented)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.

53. *(Previously presented)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.

54. *(Previously presented)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.

55. *(Previously presented)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.

56. *(Previously presented)* The method of claim 52 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

57. *(Previously presented)* The method of claim 52 wherein the cell is a human cell.

58. *(Currently amended)* A method of reducing damage due to impaired replication of cells in a tissue or organ of a mammal *in vivo*, comprising ~~administering to said cells~~ contacting said cells with an adenovirus vector that expresses a DNA sequence encoding a protein containing the telomerase T motif:

Trp-X_{12}-Phe-Phe-Tyr-X-Thr-Glu-X_{10-11}-Arg-X_3-Trp-X_7-Ile (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;

wherein the DNA sequence hybridizes to a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;

wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

~~whereby administering the vector causes an increase in telomerase enzyme activity in cells in the tissue or organ that express telomerase RNA component, thereby reducing damage to said tissue or organ~~

whereby said protein is expressed from said adenovirus vector in cells of said tissue or organ, thereby increasing telomerase enzyme activity in cells of said tissue or organ that express telomerase RNA component, and thereby reducing said damage to said tissue or organ.

59. *(Previously presented)* The method of claim 58, wherein the cells are in a human.

60. *(Previously presented)* The method of claim 58, wherein the DNA sequence encodes a full-length telomerase reverse transcriptase.

61. *(Previously presented)* The method of claim 58, wherein the DNA sequence comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.

62. *(Previously presented)* The method of claim 58, wherein the DNA sequence encodes SEQ. ID NO:2 or a fragment of SEQ. ID NO:2 having telomerase catalytic activity when complexed with a telomerase RNA.

63-64. *(Canceled)*

65. *(Previously presented)* The method of claim 62, wherein the cells are epithelial cells.

66. *(Previously presented)* The method of claim 62, wherein the cells are keratinocytes.

67. *(Previously presented)* The method of claim 62, wherein the cells are hair matrix or hair shaft cells.

68. *(Previously presented)* The method of claim 62, wherein the cells are hepatocytes.

69. *(Previously presented)* The method of claim 62, wherein the cells are endothelial cells.

70. *(Previously presented)* The method of claim 62, wherein the cells are cells of the ciliary epithelium of the eye.

71. *(Previously presented)* The method of claim 62, wherein the cells are cementoblasts, odontoblasts, osteoblasts, or chondrocytes.

72. *(Previously presented)* The method of claim 62, wherein the cells are heart cells.

73. *(Previously presented)* The method of claim 62, wherein the cells are leukocytes.

74. *(Previously presented)* The method of claim 41, wherein the cell is an epithelial cell.

75. *(Previously presented)* The method of claim 41, wherein the cell is a keratinocyte.

76. *(Previously presented)* The method of claim 41, wherein the cell is a hair matrix or hair shaft cell.

77. *(Previously presented)* The method of claim 41, wherein the cell is a hepatocyte.

78. *(Previously presented)* The method of claim 41, wherein the cell is an endothelial cell.

79. *(Previously presented)* The method of claim 41, wherein the cell is a cell of the ciliary epithelium of the eye.

80. *(Previously presented)* The method of claim 41, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

81. *(Previously presented)* The method of claim 41, wherein the cell is a heart cell.

82. *(Previously presented)* The method of claim 41, wherein the cell is a lymphocyte.

83-91. *(Canceled)*